**FESSENDEN, REGINALD AUBREY** (*b.* Milton, Quebec, 6 October 1866; *d.* Hamilton, Bermuda, 22 July 1932), *radio engineering.*

Fessenden was the son of Rev. E. J. Fessenden and Clementina Trenholme Fessenden; his father had charge of a small parish in East Bolton, Quebec. When the boy was nine, the family moved to Niagara Falls, Ontario, where he entered De Veaux Military College; he later attended Trinity College School at Port Hope, Ontario, and Bishop's College at Lennoxville, Quebec. Fessenden's first position was as principal of Whitney Institute in Bermuda, but he gave it up after two years and took up a relatively lowly job as tester in the New York factory of Thomas Edison, who was his idol. He soon graduated to Edison's New Jersey laboratory, where he was encouraged to specialize in solving chemical problems. In 1890 Fessenden went to work for the Westinghouse Electric and Manufacturing Co.

In 1892 Fessenden was named professor of electrical engineering at Purdue University; after a year he moved to a similar position at the Western University of Pennsylvania (now the University of Pittsburgh), where he remained for seven years. He next served as a special agent for the U.S. Weather Bureau from 1900 to 1902; his assignment was to adapt radiotelegraphy to weather forecasting and storm warning.

Fessenden's first contribution was the development of the electrolytic detector in 1900 (patent granted in 1903), a device sufficiently more sensitive than the primitive radiotelegraphy detectors of the day to make radiotelephony feasible for the first time. This invention led to other ideas, such as the use of a specially designed alternator as the source of high-frequency oscillations (one machine produced 50,000 cycles per second) and the invention of the heterodyne receiver, forerunner of the superhet. Many of his ideas were in advance of the times and were not elaborated until many years later, by others.

In 1902 two Pittsburgh financiers, Thomas H. Given and Hay Walker, Jr., formed the National Electric Signalling Company to exploit Fessenden's ideas and made him general manager. The firm made many contributions during the eight years of its existence; its station at Brant Rock, Massachusetts, transmitted the first voice signals over long distances in 1906, and the company manufactured radio equipment. But its dreams of competing with the American Marconi Company in establishing an international communications network came to naught when Fessenden demanded that a Canadian subsidiary controlled by himself should run a link with Britain, an arrangement opposed by his backers. Fessenden sued and won a judgment of $406,000, sending the company into bankruptcy.

During his career Fessenden obtained some 300 patents. Not a few became the subject of litigation; in one case, he sued the Radio Corporation of America for $60 million, asserting that he was being prevented from selling devices based on his own patents. The suit was settled out of court. He remained a controversial figure. Among his admirers was Elihu Thomson, himself a prominent inventor and engineer, who is said to have described Fessenden as "the greatest wireless inventor of the age—greater than Marconi." It is difficult to escape the conclusion that many of the fights in which Fessenden became involved were traceable to a choleric temperament and a persistent fear that men of business were getting the best of him—a fear not entirely without justification in the early days of radio.

*BIBLIOGRAPHY*

There is a biography by his widow, Helen M. Fessenden, *Fessenden, Builder of Tomorrows* (New York, 1940). For an account of Fessenden's role in the development of radio, see G. L. Archer, *History of Radio to 1926* (New York, 1938), pp. 67 ff. An obituary is in the *New York Times* (24 July 1932), p. 22.

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